

REMARKS

Favorable reconsideration is respectfully requested.

The claims are 1-17.

The above amendment is responsive to points set forth in the Official Action.

With regard to the recitation in claim 1 that the amount of surface active agent be "but sufficiently high to effect substantial decrease of defects in a patterned resist layer formed from the photoresist composition", support is evident from paragraph [0008] and [0036] of the present specification from which it is clear that the number of defects in the finely patterned resist layer can be greatly decreased when thickness is small and even if the concentration of a surface active agent in the composition is so low as not to exceed 50 ppm by weight and of course sufficiently high as to be consistent with the objective of the present invention which is to effect substantial decrease of defects in the pattern resist layer formed from the photoresist composition. New

Accordingly, the above amendment does not introduce new matter.

With regard to the objection to the specification in Official Action paragraph 1, the suggested amendment has been made.

The claims have been rejected as unpatentable over the prior art on several grounds, all of which include Kawabe et al. (EP 0 952 489 A1) and Fujie et al. (US 6,303,264 B1).

All of these rejections are respectfully traversed.

As indicated by the Official Action, the Kawabe and Fujie references each teach a photoresist composition containing a surface active agent in a specified concentration. In fact, Kawabe teaches that the object of their invention is to decrease defects in a patterned resist layer, apparently the same as in the present invention. The means for solution of this problem, however, are quite different between Kawabe and the present invention.

Kawabe teaches in [0111] that the weight ratio of the resinous ingredient (A) to the surfactant (D), i.e. (A):(D), should be from 500 to 20000 or, preferably, from 1000 to 15000.

These ranges correspond to the lower limit of the surfactant concentration of 50 ppm or, preferably, 68 ppm by weight relative to the polymer, suggesting that the results could be better with 68 ppm than with 50 ppm. In fact, the amount of the surfactant in each of the Examples is 0.05 g per 10 g of the polymer corresponding to 5000 ppm by weight ([0168], [0189], [0197], Tables). In this

$$\frac{A}{D} = \frac{500}{1} = 500$$

$$\frac{1}{500}$$

$$\begin{aligned} 20000 &= X \cdot 1000, \dots \\ 20000 &= X \cdot 10000 \\ X &= 5 \\ 10000 &= X \cdot 1000, \dots \\ 1000 &= X \cdot 100 \end{aligned}$$

regard, the defect-decreasing effect obtained with 68 ppm of the surfactant obtained in Example 7a (Tables 5 and 6) is no better than with a higher surfactant concentration or rather poorer at least for Development Defects II (Table 6).

Needless to say, the number of the Development Defects is very large in Comparative Example 6a without addition of a surface active agent.

Incidentally, defect-decreasing effect is not an object of Fujie et al. invention.

In contrast thereto, the novel and unexpected discovery leading to the present invention is that the object of the invention, which is common to Kawabe and the present invention, can better be accomplished by decreasing the amount of the surfactant below 50 ppm.

The above discussion leads to the conclusion that a person skilled in the art of photoresist compositions and informed of the Kawabe and Fujie disclosures would never be motivated to decrease the amount of the surfactant below 50 ppm by weight without the benefit of the Applicants' disclosure in the present application since, according to Kawabe, the defects-decreasing effect could be better with 68 ppm of the surfactant than with 50 ppm and could be best with 5000 ppm in the more preferable Examples. Thus, the present claims are not only novel but also unobvious over the cited references, alone or combined.


None of the remaining references, in the least, overcome the above-discussed defects of Kawabe and Fujie.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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